



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/661,635	09/13/2000	Rupert Julian Alexander Brauch	10970905-2(4671-20)	9173

7590 07/02/2004  
IP Administration  
Legal Department M/S 35  
Hewlett-Packard Company  
P O Box 272400  
Fort Collins, CO 80528-9599

EXAMINER

PHAN, THAI Q

ART UNIT	PAPER NUMBER
2128	

DATE MAILED: 07/02/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

# Office Action Summary

## Application No.

09/661,635

## Applicant(s)

BRAUCH, RUPERT JULIAN  
ALEXANDER

## Examiner

Thai Q. Phan

## Art Unit

2128

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

## Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

## Status

- 1) ☒ Responsive to communication(s) filed on 05 April 2004.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

## Disposition of Claims

- 4) ☒ Claim(s) 1-3,8-12 and 21-23 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-3,8-12 and 21-23 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

## Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 13 September 2000 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

## Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

## Attachment(s)

- ☒ Notice of References Cited (PTO-892)
- ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_
- ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_
- ☐ Notice of Informal Patent Application (PTO-152)
- ☐ Other: \_\_\_\_\_

### **DETAILED ACTION**

This Office Action is in response to applicant's amendment and response to Office Action, filed on Apr. 05, 2004. Claims 22 and 23 are newly added. Claims 1-3, 8-12, and 21-23 are pending now in the Action.

#### ***Claim Rejections - 35 USC § 103***

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 1-3, 8-12, and 21 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hohensee et al, US patent no. 5,778,211 in view of Ross et al, Patent no. 5,915,117, or in view of Le, US patent no. 6,631,514 B1.

The applied reference Le (US patent no. 6,631,514 B1) has a common Assignee with the instant application. Based upon the earlier effective U.S. filing date of the reference, it constitutes prior art only under 35 U.S.C. 102(e). This rejection under 35 U.S.C. 103(a) might be overcome by: (1) a showing under 37 CFR 1.132 that any invention disclosed but not claimed in the reference was derived from the inventor of this application and is thus not an invention "by another"; (2) a showing of a date of invention for the claimed subject matter of the application which corresponds to subject matter disclosed but not claimed in the reference, prior to the effective U.S. filing date of the reference under 37

Art Unit: 2128

CFR 1.131; or (3) an oath or declaration under 37 CFR 1.130 stating that the application and reference are currently owned by the same party and that the inventor named in the application is the prior inventor under 35 U.S.C. 104, together with a terminal disclaimer in accordance with 37 CFR 1.321(c). For applications filed on or after November 29, 1999, this rejection might also be overcome by showing that the subject matter of the reference and the claimed invention were, at the time the invention was made, owned by the same person or subject to an obligation of assignment to the same person. See MPEP § 706.02(I)(1) and § 706.02(I)(2).

As per claim 1, Hohensee discloses a method and system for handling exceptions in an emulator program running in a digital computer system, having memory and operating system, very identical to the claimed invention (Abstract, Fig. 1, Summary of the Invention, col. 3, line 1 to col. 4, line 23). According to Hohensee, the method of exception handling includes steps of

receiving an exception from the operating system upon execution of emulator program or emulation program or during operation of the emulator program (col. 3, line 1 to col. 4, line 40, col. 9, line 3 to col. 10, line 9),

determining whether the received exception was caused by the emulator program itself or by the user program (col. 7, line 41 to col. 8, line 4, cols. 13-14, for instance) for handling exceptions, and if the exception was caused by the emulator program, handling the exception in the emulator program in a precise exception handling model (Background of the Invention, col. 7, line 41 to col. 8, line 55, for example), or pending exception handling for the delayed exception

Art Unit: 2128

caused by the emulated program (col. 8, lines 5-34, col. 10, lines 53-62, for example). It can handle exception by itself because the emulator program is executed and run under control of the host operating system, and the host operating control system is able to handle exception caused by the emulator system (col. 3, lines 3-58, col. 11, lines 16-34). By using exception handling model, emulation program system (10) could handle the exception caused by the emulator program by itself (It herein implies without delivering the exception, caused by the emulator program, to the emulated user program). Hohensee does not expressly disclose the claimed feature of without delivering the exception caused by emulator program to the emulated user program in a disclosed context. Such feature of without delivering the exception to the emulated user program in the disclosed context or deferring the exception to its destination is well-known in the art. In fact, Ross teaches method and system for handling exception using deferral exception handling to reduce latency on emulation load execution (see Field of the Invention (col. 1, lines 13-17), Summary of the Invention, Figs. 1-2, col. 4, lines 28-56, col. 7, line 46 to col. 8, line 67, col. 9, lines 22-33, for example).

Le also teaches a method and system for handling exception caused by the emulator internally without delivering the exception to the emulated user program or legacy codes (col. 6, lines 12-64, col. 7, lines 15-25, for example) in order to optimize speculative in reordering of instructions and to independently handle exception caused by the emulator program to optimize run time compilation as taught in col. 8, lines 21-35.

This would motivate practitioner in the art at the time of the invention was made to combine Ross teaching of deferral exception handling into Hohensee in order to defer exception handling to destination source and without delivering the exception to the external source or to the emulated user program, or to combine Le teaching of exception deference to reduce latency and maximize speculative execution as in cols. 6 and 7 to maximize performance over a broadest range of software application in handling speculative.

As per claim 2, Ross disclose trap or exception type (see Ross, col. 4, lines 28-56, col. 7, lines 46-59, and col. 9, lines 1-33, for instance), determining whether the identified type of exception is currently blocked by the user program for deferral exception, and if not, then delivering the notification of exception to the user program as claimed (col. 4, lines 28-56, col. 7, lines 46-59, col. 9, lines 1-33, for instance).

As per claim 3, Hohensee discloses exception handling by holding or withholding delivery of exception from the user program for subsequent processing. Ross teaches deferral exceptions handling carrying features of holding or withholding exception as claimed (Summary of the Invention). Le teaches without delivering the exception to the emulated user program to optimize speculative in reordering of instructions as taught in Le. For such reasons, this would motivate practitioner in the art at the time of the invention was made to combine the teaching of holding or withholding delivery of exception from the user program for subsequent handling exception of user program as

Art Unit: 2128

taught in Ross or in Le above into Hohensee in order to handle pending exception or deferral exception.

As per claim 8, Hohensee disclosure would imply creating and maintaining status mask for exceptions to defer for subsequent processing.

Ross discloses status mask as claimed (Figs. 1 and 2).

As per claim 9, Hohensee disclosed a data structure would be used to implement exception handling. It would also require a data structure to implement status mask within the emulator memory.

As per claims 10-12, Hohensee disclosed synchronizing exceptions so that the program execution can continue with the next instruction, determining whether the exception is an interrupt system call (cols. 9-14), and determining whether the exception is asynchronous, an interrupt system call, if not, marking for pending, delivering the exception to the user program to continue executing the program instruction as claimed.

As per claim 21, Hohensee disclosed various exceptions, precise exception handling model for handling exceptions, and floating point arithmetic exception (Background of the Invention, cols. 9-14) that include privilege fault and floating point exceptions as claimed.

### ***Double Patenting***

1. The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. See *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re*

Art Unit: 2128

*Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and, *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent is shown to be commonly owned with this application. See 37 CFR 1.130(b).

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

2. Claims 1-3, 8-12, and 21-23 are rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 1-19 of US patent no. 6,173,248 B1. Although the conflicting claims are not identical, they are not patentably distinct from each other because they are directed to method and system for processing an exception in an emulator program running on a digital computer having a memory and under control of an operating system. The emulator program at this issue is for emulating execution of a user program constructed for execution on a legacy platform with feature limitations cover the presently claimed invention. Claims 1-3, 8-12, and 21-23 are a general concept of the claims in the issued patent. In other words, these claims are an obvious view or variation of the patent claims.

### ***Response to Arguments***

Applicant's arguments filed Apr. 05, 2004 have been fully considered but they are not persuasive.

In response to applicant' argument Ross is not combinable with Hohensee because they are different in handling exceptions (page 6), the examiner



Art Unit: 2128

disagrees with. They are directed to methods and system for handling exceptions generated by the emulation program in data processing systems. It has been held that a prior art reference must either be in the field of applicant's endeavor or, if not, then be reasonably pertinent to the particular problem with which the applicant was concerned, in order to be relied upon as a basis for rejection of the claimed invention. See *In re Oetiker*, 977 F.2d 1443, 24 USPQ2d 1443 (Fed. Cir. 1992). In this case, Both Hohensee and Ross are related to the techniques of handling exceptions, particularly controlling exception deferral to improve exception handling, and deferring exception on emulation program (see Ross). In Fact, Ross teaches method and system for handling exception using deferral exception handling to reduce latency on speculative load execution (see Summary of the Invention, Figs. 1-2, col. 4, lines 28-56, col. 7, line 46 to col. 8, line 67, col. 9, lines 22-33, for example).

This would motivate practitioner in the art at the time of the invention was made to combine Ross teaching of deferral exception handling into Hohensee in order to defer exception handling to destination source and without delivering the exception to the external source or to the emulated user program, or to combine Le teaching of exception deference to reduce latency and maximize speculative execution as in cols. 6 and 7 to maximize performance over a broadest range of software application in handling speculative.

In response to applicant's argument " Le reference and the present application were either commonly owned, or subject to an obligation of common ownership at the time of the present invention.", the examiner notes this

Art Unit: 2128

statement does not comply with requirements which clearly state "the subject matter and the claimed invention were, at the time the invention was made owned by the same person or subject to an obligation of assignment to the same person."

Acknowledgment has been made for filing a Terminal Disclaimer by applicant to overcome the Double Patenting rejection.

### ***Conclusion***

**THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Thai Q. Phan whose telephone number is 703-305-3812. The examiner can normally be reached on Monday-Friday.

Art Unit: 2128

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Kevin Teska can be reached on 703-305-9704. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

T.P.  
June 26, 2004

  
Thai Phan  
Patent Examiner  
Art Unit 2128